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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/612,559

07/02/2003

Yasuhito Sekiya

S004-5058

4513

7590

11/01/2005

ADAMS & WILKS

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EXAMINER

NGUYEN, LAMSON D

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/612,559 | SEKIYA, YASUHIITO | |
| | Examiner | Art Unit | |
| | Lamson D. Nguyen | 2861 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment dated 08/08/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 6, 13, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (AAPA) in view of Kishi (6,050,665).

AAPA teaches an inkjet printer comprising:

* an ink jet head comprised of a piezoelectric ceramic plate having at least a pair of partition walls with deformable side walls spaced apart at a preselected distance to form a channel for receiving ink and communicating with a nozzle opening, a pair of electrodes each connected to respective ones of the side walls of the partition walls, a wiring substrate mounted with a driving circuit including a driving integrated circuit for applying a driving voltage to the pair of electrodes to deform the side walls of the partition walls of the piezoelectric ceramic plate to vary the volume of the channel to thereby eject ink from the nozzle opening (figure 9 of the specification teaches inkjet head comprising deformable walls 203 spaced apart, nozzles 217, electrodes 205 connected to walls 203, wiring substrate 220, driving circuit; it's well-known that a piezoelectric head such as this to have deformable side walls upon applied voltage to vary the volume of an ink channel formed in the grooves to eject an ink droplet)

* a nozzle plate connected to the substrate and having a plurality of nozzle openings each disposed in communication with respective ones of the channels so that when the electrodes are driven by a voltage signal ink is ejected from the channels through the nozzle openings (figure 9, well-known in a piezo inkjet printhead)

However, AAPA does not teach:

- (claim 1) data storage means for storing two or more different types of driving information data of the ink jet head including driving condition data and an external circuit connected to the driving circuit of the inkjet head and having setting means for reading at least the driving condition data stored in the data storage means and automatically setting driving conditions of the inkjet head in accordance with the driving condition data
- (claim 2) driving condition data includes voltage rank data for setting a magnitude of the driving voltage applied by the driving integrated circuit to a predetermined value

Meanwhile, Kishi teaches a printer that includes a system for automatically adjusting the drive voltage of a printhead according to a predetermined rank characteristic data of the head (Abstract). Column 7, lines 1-10 teach CPU 43 connected to ROM 49 for storing a variety of printing data types. Specifically, figure 6 teaches a circuit connected to driver IC 26; figures 10A and 10B are tables for determining rank based on drive voltage necessary to perform operations of printhead 2

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and a table showing drive voltage required to drive each rank of the printhead in a particular operating ambient temperature, respectively. Column 9, lines 45-50 teach CPU 43 acts as a setting means for "after distinguishing the rank of the mounted printhead 2, it can appropriately control voltage applied to the printhead 2 during printing operations...".

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to incorporate the teaching of a circuit which includes rank data including driving condition data and setting means to read rank data and to set driving conditions of the head taught by Kishi for the purpose of performing appropriate printing operations (column 9, line 50).

Claims 3-5, 7-12, 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Kishi as applied to claim 1 above, and further in view of Ardito et al. (6,431,672).

AAPA in view of Kishi teaches all claimed features of the invention except:

Claim 3:

- the driving information data includes dot count data obtained by counting the number of ink discharge of the inkjet head

Claim 4:

- data writing means for storing the number of times of ink discharge of the inkjet head as the dot count data in the data storage means

Claim 5:

- data manage means for managing the dot count data
- notifying means for notifying the ink is close to the end of its lifetime, wherein the data managing means makes the notifying means operate at a time point when the dot count data attains a predetermined value or more

Meanwhile, Ardito et al. teach an inkjet printer that's capable of counting ink drops that are fired by printhead 102 (col 7, lines 65-67). Then, the system then calculates the estimated amount of ink used from that drop count and knowledge of the amount of ink per drop (column 8, lines 1-4). This estimate of ink used is then subtracted from the starting estimate of ink remaining in the container 110, and the resulting value is stored (column 8, lines 2-6), hence inherently teaching data manage means and data writing means. Ardito also teaches a notification means to notifying a user of a low ink condition within the ink container (column 5, lines 25-30).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of AAPA in view of Kishi to incorporate the teaching of Ardito's dot counting means, data writing means, and

notification means for the purpose of reliably and accurately determining the ink level within the ink reservoir (column 4, lines 4-6).

Response to Arguments

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action as the examiner has presented above. The newly amended feature of "two or more different types of driving information data" fails to put this instant application in condition for allowance. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamson D. Nguyen whose telephone number is 571-272-2259. The examiner can normally be reached on 8-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Talbott can be reached on 571-272-1934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LAMSON NGUYEN
PRIMARY EXAMINER
10/29/08